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ABSTRACT

This journal provides a focal point for the collection and distribution of systematically processed information about theory and practice in theatre. Part of an irregularly published series, this volume contains investigations of audience information processing and its relationship to subject sex and stimulus complexity, manipulation and measurement of vocal frequency levels of student actors, the perception of racial themes in neutral performances among black audience members, and the three components of the actor's nonverbal repertoire (power, immediacy, and responsiveness). In addition, a study of audience analysis and its possible ramifications for advertising, theater promotion, and performance selection is included, as well as an analysis of the correlation between director expectancy and actor effectiveness. (KS)

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Summer, 1974

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INFORMATION PROCESSING IN THE THEATRE: SUBJECT SEX AND STIMULUS COMPLEXITY

William Gourd

Introduction

This article reports results from one component of an experimental study which investigated relationships between people's responses to dramatic productions and their information-processing capabilities.

Information processing as a subcategory of personality theory is well established in the literature of psychology. Deriving largely from the Personal Construct Theory of George Kelly and incorporating concepts from cybernetics and information theory, the information-processing view of human personality has been articulated by such researchers as Bieri (1955), Bieri and Blacker (1956), Bieri and Messerly (1957), Fiske and Maddi (1961), Bieri, et. al. (1966), Schroder, et. al. (1967), and Schroder and Suedfeld (1971). Information-processing theorists maintain, essentially, that a person behaves in ways commensurate with her information acquisition, transformation, and utilization processes. Investigation in this area has been given major impetus by Bieri and others in studying the concept of cognitive complexity-simplicity, which postulates an intra-personal continuum of information-processing capability.

In addition to person complexity, much of the literature deals with stimulus complexity and with relationships between the two. Two decades ago, experiments using the Barron-Welsh Art Scale demonstrated correlations between subject complexity and stimulus complexity when subjects rated art works or indicated preferences for certain kinds of paintings (Barron, 1952 and 1953; Barron and Welsh, 1952). Since then, studies in perception and information processing have continued to explore relationships between person and stimulus complexity/simplicity (Leventhal, 1957; Leventhal and Singer, 1964; Sieber and Lanzetta, 1964; Miller and Bieri, 1965; Irwin, Tripodi, and Bieri, 1967; Grove and Eisenman, 1970; Wilkins and Epting, 1971).

Dramatic and theatric phenomena have not been studied in an information-processing context.

It is belaboring the obvious to suggest that a given audience at a given production is likely to manifest a wide variety of responses to the play, or to point out that different "kinds" of plays seem to appeal to different "kinds" of people. Most of the time, however, we seem content to attribute such variations to "individual differences" among auditors or to this or that "ability" or "talent" for "understanding the dramatic moment," etc. We have not sought to explore characteristics either of plays or of people experiencing them which might explain such response variations. Perhaps one of the most obvious of the "people characteristics" susceptible of such study is sex. We are in the midst of what appears to be a major revolution of our attitudes and knowledges about differences and similarities between the sexes, yet theatre researchers have been surprisingly negligent in exploring audience response phenomena with respect to possible response differences between females and males. The only empirical study that could be identified as pertaining directly to this issue was done in 1950. Morgan's dissertation was a behavioral study of females' and males' responses to specific kinds of dramatic situations--male-dominated episodes vs. female-dominated episodes, "love" episodes, "family" episodes, etc.--but it appears to have been a lonely effort.

Recent psychological studies involving sex differences, while not theatre-related, have suggested the possibility of generating research questions pertinent to information processing and sex differentiation. Irwin, et. al. in 1967 demonstrated that females made finer distinctions than males when rating disliked persons. A 1970 study by Soucar, however, apparently reversed that finding: boys made finer distinctions than girls when rating negatively-valenced teachers. (Attempting to explain this result, the author did not suggest the possibility that in this culture females are taught to be less critical than males.) Bellante (1970) found some significant relationships between empathic response and sex in adolescents. Bugental, et. al. (1970) discovered that grade-school children were adept at perceiving verbal/nonverbal incongruences in messages transmitted by adults, and that their perceptions were especially acute when females were the transmitters. Miller and Bacon (1971) showed differences in females' and males' perceptions and receptions of sexy pictures, but their

research focus was on the closed-mindedness/open-mindedness continuum. In an attempt to replicate some earlier research, Looft and Baranowski (1971) found that female university students preferred more complexity in their polygons than did male university students. Their study did not indicate that polygons were considered sex-related stimuli. An investigation of conforming behavior by Sistrunk and McDavid (1971) seemed to indicate that earlier results showing greater conforming tendencies in females than in males derived largely from sex biases built into measuring instruments.

Research Question

For the study reported here a hierarchy of exploratory research questions dealing with subject complexity, subject sex, and stimulus complexity was generated. This article focuses specifically on the question, "What relationships, if any, can be found to exist between the sex of audience members and their perceptions of complex and simple dramatic stimuli?"

Independent Variables

The entire experiment used three independent variables in a 2 x 2 x 2 factorial design. The first of these was subject complexity, as measured by Bieri's Role Concept Repertory (Rep) Test (Bieri, et. al. 1966). This paper, however, reports only those results obtained from the interaction of the two remaining independent variables: subject sex, and stimulus complexity.

Although there presently exists no instrument capable of measuring the total "complexity" of a dramatic production, studies have indicated that assessments of entropy/redundancy of written material can be employed as indicators of relative complexity (see especially Emmert and Brooks, 1970), and that "Cloze" procedures are useful for quantifying degrees of entropy/redundancy. To select two plays as treatments in this experiment, an entropy test was applied to the playscripts of Harold Pinter's The Homecoming and Noel Coward's Private Lives. Subjects were presented with a series of randomly-selected dialogues from each play. Every fifth word in each dialogue was replaced with a blank line, and the subjects were asked to read the

selections and to insert on each blank line the word which best fit the context. Results supported the hypothesis ($p < .01$) that The Homecoming would be judged as the more entropic, or complex, play and that Private Lives would emerge as the more redundant, or simpler, script. Experimental subjects' exposure to the two plays in production constituted the two levels of stimulus complexity.

Dependent Measures

Seven-step semantic differential and Likert-type "agree-disagree" scales were used to measure the effects of the independent variables. SD scales have been widely used in theatre research, especially since the appearance in 1961 of Raymond Smith's "Semantic Differential for Theatre Concepts." The literature abounds with evaluations of the methodologies associated therewith (see, for example, Thayer, 1964; Frandsen, et. al., 1965; Clevenger, et. al., 1967; Hansen and Bormann, 1969; Tucker, 1971; Addington, et. al., 1971). The 13-scale differential used in the present research was taken from Hansen and Bormann (1969):

Worthless - Valuable
Excitable - Calm
False - True
Serious - Humorous
Masculine - Feminine
Far - Near
Dynamic - Static
Deep - Shallow
Complex - Simple
Colorless - Colorful
Honest - Dishonest
Light - Heavy
Tense - Relaxed

Likert-type scales were included in an effort to determine to what extent they might provide more specific kinds of information about subjects' perceptions of particular features of the performed plays. A set of 20 items was developed following study of the scripts and during observation of rehearsals as the production of The Homecoming neared its opening night:

1. The more complicated a play is, the more interesting it is.

2. The arrangement of the furniture is appropriate to the play.
3. This play appeals mostly to intellectuals.
4. The stage lighting for the play was effective.
5. Even when I couldn't understand the dialogue, the characters' movements helped me understand what was going on.
6. This play is boring.
7. This play is too strange to be anything like real life.
8. It is foolish to try to interpret this play.
9. This play communicates effectively.
10. This play is confusing.
11. This play is a comedy.
12. One person's opinion is as good as another's, when it comes to interpreting plays.
13. This play is carefully structured.
14. The characters' costumes were appropriate to the play.
15. A worthwhile play makes the audience work at trying to figure it out.
16. This research project irritates me.
17. I enjoyed this play.
18. The pre-show and intermission music fit the play.
19. There were too many long silences in the play.
20. These characters are crazy.

Procedures

Subjects were 60 female and 30 male undergraduates in six sections of speech and English classes at Bowling Green State University, selected on the basis of first and fourth quartiles of their score distributions on the Rep Test. They were required, as a condition of their enrollments in the respective courses, to attend performances of both plays. The Homecoming was produced during the week of April 26, 1972; Private Lives in the week of May 10, 1972. Immediately following each performance, subjects in attendance reported to a previously-designated room in the theatre building, where they occupied themselves for approximately 40 minutes completing the dependent measurement instruments. After all data were collect-

ed, subjects were thoroughly debriefed.

Multivariate data analyses were executed throughout the study. Each set of dependent measures was submitted to principal axis factor analysis. Minimum criterion for acceptance was a factor loading of 0.450; the purity criterion required that a scale's factor loading be at least twice the same scale's loading on any other factor. Ten of the 13 SD scales and nine of the 20 Likert scales emerged as salient; scale and factor arrays are displayed in Tables 1 and 2.

TABLE 1

SALIENT SCALE AND FACTOR ARRAY:
FACTOR ANALYSIS OF 13 SEMANTIC DIFFERENTIAL ITEMS
MEASURING RESPONSES TO BOTH PLAYS
(TWO FACTORS EXTRACTED: BOTH SALIENT)

Factor	Scale Designation	Rotated Factor Loading	Next Highest Loading	Estimated Communality
I	1. -Worthless-Valuable+	.849	-.106	.732
	2. +Excitable-Calm-	.733	-.265	.607
	3. -False-True+	.690	-.056	.480
	6. -Far-Near+	.706	-.037	.499
	7. +Dynamic-Static-	.766	-.113	.599
	10. -Colorless-Colorful+	.775	-.198	.640
	11. +honest-Dishonest-	.684	-.041	.470
II	8. +Deep-Shallow-	.813	.177	.691
	9. +Complex-Simple-	.850	-.070	.737
	12. -Light-Heavy+	.805	-.357	.775

% of total Variance: Factor I: 37.7; Factor II: 14.5

The factor-analyzed SD and Likert scales were then subjected to separate multivariate analyses of variance (Finn, 1968) and, in each analysis, significant F-ratios ($p<.05$) indicated interaction effects between subject sex and stimulus complexity. These results are displayed in Tables 3 and 4. Discriminant analysis was used to further analyze the significant interactions.

TABLE 2

SALIENT SCALE AND FACTOR ARRAY:
FACTOR ANALYSIS OF 20 LIKERT ITEMS
COMMON TO BOTH PLAYS
(TWO FACTORS EXTRACTED: BOTH SALIENT)

Factor	Scale Designation	Rotated Factor Loading	Next Highest Loading	Estimated Communality
I	7. This play is too strange to be anything like real life.	.758	-.130	.591
	13. This play is carefully structured.	-.454	.119	.220
	15. A worthwhile play makes the audience work at trying to figure it out.	-.048	-.268	.492
	16. This research project irritates me.	.525	.079	.281
	20. These characters are crazy.	.621	-.219	.433
II	8. It is foolish to try to interpret this play.	-.614	-.011	.377
	9. This play communicates effectively.	.781	.320	.713
	10. This play is confusing.	-.553	-.118	.320
	17. I enjoyed this play.	.636	-.107	.416

% of Total Variance: Factor I: 23.7; Factor II: 10.6

Results

Discriminant analysis of the Entropy x Sex interaction deriving from the semantic differential scales (Table 5) showed a dimension of perception characterized by high loadings on two of the discriminant function coefficients, but dominated by a high positive loading on the scale "Heavy-Light." The negative polarities of the other two loadings indicate that their referents are near the negative ends of the

TABLE 3

2 x 2 x 2 MULTIVARIATE ANALYSIS OF VARIANCE:
FACTOR II OF "PLAY" SEMANTIC DIFFERENTIALS
(ENTROPY x SEX x COMPLEXITY)

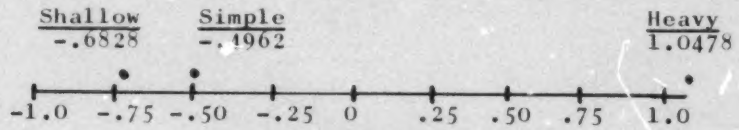
Source of Variation	d.f.	F-ratio	p less than
A main (Entropy)	3,170	53.0627	0.0001
B main (Sex)	3,170	0.3921	0.7589 (N.S.)
C main (Complexity)	3,170	0.3540	0.7864 (N.S.)
A x B	3,170	3.0088	0.0318
A x C	3,170	7.6864	0.0001
B x C	3,170	1.3861	0.2487 (N.S.)
A x B x C	3,170	1.4362	0.2340 (N.S.)

TABLE 4

2 x 2 x 2 MULTIVARIATE ANALYSIS OF VARIANCE:
FACTOR II OF "PLAY" LIKERT SCALES
(ENTROPY x SEX x COMPLEXITY)

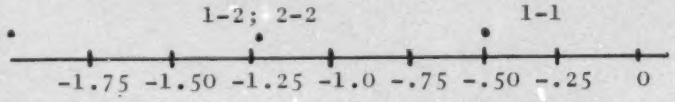
Source of Variation	d.f.	F-ratio	p less than
A main (Entropy)	4,169	30.0292	0.0001
B main (Sex)	4,169	0.7595	0.5532 (N.S.)
C main (Complexity)	4,169	3.3809	0.0109
A x B	4,169	2.9702	0.0211
A x C	4,169	2.8006	0.0276
B x C	4,169	1.7613	0.1389 (N.S.)
A x B x C	4,169	1.0789	0.3685 (N.S.)

original scales--"Shallow" and "Simple." Constructing a graph of the discriminant function coefficients provides the clearest picture of each variable's contribution to between-groups differences:



The zero-point is the base-point, as in a normal distribution. The construct "Shallow," at the extreme negative end of the graph, is contributing markedly to between-groups differences, but the construct "Heavy," at the extreme positive end of the graph and with an absolute value of over $1\frac{1}{2}$ times that of "Shallow," is the principal differentiator. If we construe "Shallow" to mean "of small consequence," "lacking in substance," etc., and if we interpret "Heavy" as meaning such things as "momentous," "significant," "important," etc. (relying for that interpretation of the word "heavy" upon contemporary meanings, used especially by post-adolescents), it then seems reasonable to characterize this graph as representing a "dimension of importance." In other words, the ways in which the dependent variable scores have grouped themselves suggest that subjects were responding to the two plays along a "dimension of perceived importance."

Looking next at the cell centroids (Table 5), it is clear that differences among cells resulted largely from females' perceptions of The Homecoming and Private Lives along this "dimension of importance." Male subjects did not differentiate between the two plays: centroids for cells 1-2 and 2-2 are identical (-1.1700). Again, a graph provides perhaps the best means of illustrating between-cells differences:



Closest to the zero-point is the Homecoming x Females' cell (1-1); farthest distant from the zero-point is the Private Lives x Females' cell (2-1). These phenomena suggest that females considered The Homecoming as "possessing" the smallest "quantity" of "importance," and that they considered Private Lives as "possessing" the greatest "quantity" of "importance." Reactions of both male cells fell approximately halfway between the two female cells.

Discriminant analysis of the Entropy x Sex interaction deriving from the Likert-type scales revealed a dimension of perception whose highest loading

TABLE 5

POST HOC DISCRIMINATION DATA
FOR SIGNIFICANT ENTROPY x SEX
(A x B INTERACTION) EFFECT, FACTOR II,
"PLAY" SEMANTIC DIFFERENTIALS

Estimated Combined Means				
Cell		Variable		
		P_6	P_7	P_{10}
1	1	4.571	5.071	4.891
1	2	4.967	5.167	4.567
2	1	3.777	3.280	2.187
2	2	3.467	2.867	2.500
Standardized Discriminant Function Coefficients				
		-.6828*	-.4962	1.9478*
Cell Centroids				
1	1	(Homecoming x Females):		-.5133
1	2	(Homecoming x Males):		-1.1700
2	1	(Private Lives x Females):		-1.9073
2	2	(Private Lives x Males):		-1.1700

*Maximally discriminating

Variable identification: P_6: + Deep-Shallow -
P_7: + Complex-Simple -
P_{10}: + Heavy-Light -

is on the coefficient for item P_8, "I enjoyed this play." (See Table 6.)

Because of the way in which subject scores on these items were input to the computer for analysis (the "agree" end of each 7-step scale receiving a score of 1, and the "disagree" end receiving a score of 7), the positive loading of the coefficient indicates subject disagreement with the item. The discriminant function is, therefore, dominated by the reverse asser-

TABLE 6

POST HOC DISCRIMINATION DATA
FOR SIGNIFICANT ENTROPY x SEX
(A x B INTERACTION) EFFECT, FACTOR II,
"PLAY" LIKERT SCALES

		Estimated Combined Means			
Cell		P_2	P_3	P_4	P_8
1	1	3.885	4.637	2.753	4.994
1	2	4.633	3.967	3.633	3.700
2	1	5.140	1.729	4.611	2.994
2	2	5.367	2.200	4.233	3.567
Standardized Discriminant Function Coefficients		.2364	.3226	-.4049*	.7146*

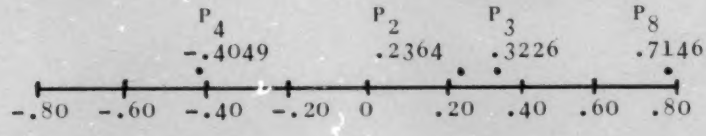
Cell Centroids

1	1	(Homecoming x Females):	4.8655
1	2	(Homecoming x Males):	3.5478
2	1	(Private Lives x Females):	2.0444
2	2	(Private Lives x Males):	2.8131

*Maximally discriminating

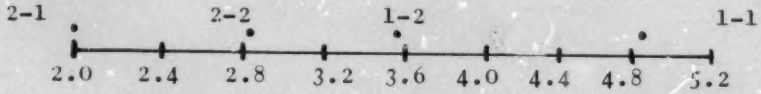
Variable identification:
P_2: It is foolish to try to interpret this play.
P_3: This play communicates effectively.
P_4: This play is confusing.
P_8: I enjoyed this play.

tion: "I did not enjoy this play." Graphing the function illustrates the variables' contributions to the dimension:



The dimension is dominated by variable P_8 ("I did not enjoy this play"), and its opposite end is represented by variable P_4 ("This play is confusing"). It seems legitimate, therefore, to characterize the graph as representing a "dimension of non-enjoyment."

Examination of the cell centroids (Table 6) reveals a pattern remarkably similar to the centroid pattern along the "dimension of importance" discussed above: in the graph below, the greatest differential magnitude appears between the two female cells (1-1 and 2-1, with the two male cells falling approximately halfway between.



Female subjects apparently perceived The Homecoming (cell 1-1) as "possessing" the greatest "quantity" of "non-enjoyment," and they perceived Private Lives (cell 2-1) as "possessing" the smallest "quantity" of "non-enjoyment." In other words, females "enjoyed" The Homecoming much less than they did Private Lives.

Discussion

One of the reasons for having included the sex variable in this study was the fact of increased awareness in our culture of sex-based discriminatory behavior, often directed toward females, but perhaps equally as often practiced by females. It is possible to view both The Homecoming and Private Lives as dealing with female-male issues that have been characterized as "sexist." The mother-virgin-whore image, long a cultural stereotype in the literature of western "civilization" can be applied to Ruth, as she is perceived by the male characters in The Homecoming. With the possible exception of Sam, all of the male characters in that play can be viewed as sexists because of their behaviors and attitudes toward women. In Private Lives, too, the contrast between Amanda and Sibyl (as well as the male characters' treatments of both women) can be seen as exemplary of some of the controversies underlying the current women's movement. Amanda is relatively free sexually, is perfectly capable of caring for herself in a male-dominated world

(though certainly she must manipulate the surrounding males in order to achieve her ends), and she would hardly be characterized as a quintessentially "domestic" sort of woman. Sibyl, on the other hand, is almost entirely dependent upon a male to take care of her--indeed, the script contains references to Sibyl's female parent such that it is legitimate to assume that Sibyl has gone "from one nest to another" with no intervening time for getting herself together and dealing autonomously with the world. She is certainly not sexually liberated, even by the standards of her own era, and her image is generally that of the "helpless female."

It was felt initially that, given the contemporary climate of attitudes and behaviors toward women in our culture, these two plays might stimulate in female spectators some reactions of a different character, or more intense reactions, than those of male spectators. Results suggest that such reactions did indeed occur.

Females in this study preferred Private Lives to The Homecoming. They preferred the simpler play to the more complex play. Apparently there were features of the information transmitted by these two plays which caused females to process Private Lives in a more positive way than The Homecoming.

It will be assumed here, if only for the purpose of generating arguments, that it is possible to view these two plays such that although both can be seen as incorporating features of sexism, The Homecoming is the more offensive of the two in this regard. Private Lives seems unequivocally intended as a "comedy," and the ease, in contemporary American society, with which we are able to apply that label to a play parallels the ease with which we are able to regard that play as relatively inoffensive. We are accustomed to viewing "comedy" as something which by definition does little more than mirror the most innocuous of our societal behaviors, personal interactions, etc. Private Lives is, in addition, set in a period of time which is relatively distant from--and therefore relatively irrelevant to--most of the students who served as subjects in this study. The contention here is that although it is possible to view Private Lives as a "good example" of a sexist

orientation to the treatment of women, these subjects did not view it in that manner as much as they did The Homecoming.

The Homecoming is probably not so easily defined as a "comedy." It contains what we traditionally think of as comedic elements, but it also deals with human viciousness in ways which may be decidedly unfunny, and much of that viciousness is sex-related. In Lenny's first scene with Ruth, for example, he describes what may be a real experience, a fantasy, or some schizoid admixture, when he talks about his encounter with a woman "down by the docks." We are led to believe that the woman was a whore--representative of Lenny's general view of woman's proper station--and that, under ordinary circumstances, Lenny might have accepted her solicitation, except that she was "falling apart with the pox." According to Lenny, her insistence enraged him, and he considered murdering her. Finally deciding, however, that killing her would create certain logistic inconveniences, Lenny simply gave her "another belt in the nose and a couple of turns of the boot and sort of left it at that." If that scene leaves doubts in the spectator's mind about Lenny's attitude toward women, his final line in the sequence does not. When Ruth asks how he knew that the woman was diseased, Lenny replies, "I decided she was."

Ruth's introduction to Max prompts the old man to a vicious diatribe on the subject of what he imagines to be her state of morality: "Who asked you to bring dirty tarts into this house? . . . We've had a smelly scrubber in my house all night. We've had a stinking pox-ridden slut in my house all night." Etc.

The Homecoming was identified as the more complex (entropic) of the two plays, meaning in turn that the information carried by its production may have been less easy for the subjects to process--may have been less predictable than Private Lives. References to the dead wife and mother, Jessie, are alternately sentimentally maudlin and sexually vicious: Max refers to Jessie at one moment as "the backbone to this family . . . a woman at home with a will of iron, a heart of gold and a mind," and in the next moment as "a slutbitch of a wife." Joey's mother/whore relationship with Ruth is still another ambiguity which may

have been perceived as both sexually offensive and difficult to process. If we consider only the treatment of Ruth in the play, it is reasonable to say that most of the male characters regard her as a "sex object" in the most callous fashion, and that this could have been interpreted as offensive or as threatening by many of the female subjects.

The Homecoming is also a modern play, whereas Private Lives can be seen almost as a "period piece," and the former play is thereby more "relevant" to the experiences of the study's subjects. A relevant threat is doubtlessly more threatening than an irrelevant threat. Conclusion: because females may have been more greatly offended by The Homecoming than by Private Lives, and because they may have experienced greater difficulty in integrating the former play's information because of its relatively greater entropy, they "enjoyed" The Homecoming less. If they "enjoyed" it less, they may have found a need to lower their estimations of its "importance," in much the same fashion as the purchaser of an automotive "lemon" reduces her dissonance by saying, in effect, "The damned thing's no good, anyway!"

An alternative explanation for the differing responses utilizes the obverse of the same "sex-role-conditioning" hypothesis, suggesting that subjects were offended or angered by The Homecoming, but that in this instance the source of their displeasure was Ruth's own behavior rather than the behavior of male characters toward Ruth. Despite changes that are occurring in the culture, it seems fair to assert that cultural norms prescribing female role behaviors maintain such notions as that females are expected to be submissive to males, that they are expected to be less aggressive than males, that they are expected to repress (or conceal) meaningful sexuality, that they are expected to be devoted to Kirche, Kuche, und Kinder above all else, that they are expected to be incompetent in matters of "business"--in short, that women are expected to maintain role behaviors traditionally associated with passive "femininity" and to eschew behaviors traditionally associated with active "masculinity."

Much of Ruth's behavior contradicts these expectations: she manipulates and dominates Lenny,

she engages in active sexual behavior with Joey (although she is characterized by Lenny in that episode as being a "tease," doubtlessly introducing additional entropy into the overall situation), her relationships with home and children are rather more casual than our televised detergent advertisements suggest they ought to be, she manages to maintain the upper hand in her relationships with the play's male characters despite their callous treatment of her, she "talks dirty," and she proves a shrewd businesswoman when Lenny proposes to set her up as a call girl. Finally, she obviously approves of Lenny's idea, which is perhaps the greatest affront to traditionalists.

Because Ruth's behavior did not conform to expected cultural stereotypes, there is good reason to believe that she offended a number of subjects of both sexes. This could account not only for the marked differences in females' responses to the two plays, but also for the less-pronounced differences in males' responses on the "dimension of non-enjoyment."

Either argument seems plausible and, indeed, it may be that both phenomena were operating. At this point, one cannot wholeheartedly accept either a "progressive dissonance-reduction hypothesis" or a "regressive dissonance-reduction hypothesis" as an explicand of the observed response variations without further study. The theatre can be a most useful laboratory for studying perception, attitude, and behavior phenomena, however, as we continue to discover techniques and methodoiogies that facilitate our explorations.

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MANIPULATION AND MEASUREMENT OF VOCAL FREQUENCY OF STUDENT ACTORS

Patricia Clift Howard and Anthony Holbrook

Traditional methods of teaching pitch techniques to students of acting and oral interpretation require auditory discrimination--both the student's and the teacher/director's--to measure success or failure. Even when a pitch reference such as a piano is used, evaluation is subjective and useful only to the degree the student can be guided by what he hears. Since auditory discrimination seems vital to good pitch production, persons with hearing deficiencies sufficient to impair self-monitoring would be expected to experience difficulties in pitch management. Although this is frequently true, a new method of modifying and measuring vocal pitch has made it possible for even the profoundly deaf to use appropriate pitch.

The new method employs an electronic frequency-analyzing device, the Saber, Inc. FLORIDA I, which visually signals target pitch production within a variable width frequency band, and also registers accumulated duration of vocal response within the frequency band selected. Additionally, fundamental frequency analysis is performed by repeatedly playing a recording through the instrument and noting the duration of vocal frequency at successive 10 Hz intervals. Subsequent to the development of FLORIDA I, other vocal pitch responsive instruments have become available. One such device, the F_0 Indicator (produced by AB Special instrument, Stockholm) features a calibrated needle gauge and two controls for selecting a variable width fundamental frequency range between 50-550 Hz. The instrument provides only momentary measurement of vocal frequency and cannot be used to measure a subject's performance. Thus, it is more limited in application than FLORIDA I.

Successful modification of vocal pitch of normal subjects, subjects with functional pitch disorders, and deaf subjects aged 15 months to 47 years (Holbrook, 1970; Holbrook and Crawford, 1970; Moore and Holbrook, 1971; and Roll, 1968a,b) led to an interest in studying the use of this technique and technology to improve the pitch of those whose speech is judged artistically--specifically, student actors interpreting dramatic roles. For this study, improve-

ment was defined as elimination or reduction of undesirable vocal frequency, as shown by comparison of fundamental frequency profiles made before and after training. The existence of undesirable vocal frequency was determined by the experimenters who (a) analyzed the subject's fundamental frequency profiles, (b) compared the profiles with those of superior speakers studied in previously published research, and (c) evaluated the pleasantness of the subject's vocal quality and the presence or absence in his voice of functional pitch disorders such as suppressed pitch, elevated pitch, pitch breaks, etc.

A secondary purpose of the study was to provide quantitative data showing vocal frequency in stage speech, since there is a paucity of such normative data. Cowan (1936) measured the frequency characteristics of 14 speech samples recorded by ten professional actors and actresses. The recordings were highly emotional and displayed wide range and variety of vocal frequency. Fairbanks and Pronovost (1939) studied frequency characteristics of expressions of five different emotional states, determining that distinctive differences in vocal frequency existed among those expressions judged the most successful. The samples measured in both studies were necessarily brief, since the wave-by-wave method for measuring fundamental frequency was extremely laborious.

However, in two recent studies (Fitch, 1968; Fitch and Holbrook, 1970) an experimental model of the FLORIDA apparatus was found to compare favorably with the sound spectrograph, another device often used to measure fundamental frequency. And, in a study of the Habitual Pitch Level, or HPL, of 100 female and 100 male young adults, results were obtained which were generally in agreement with those obtained by other methods in previous studies; the results were reported as modal levels, i.e. that vocal frequency which occurred most often.

Since the FLORIDA apparatus has been shown to provide valid measurement of vocal fundamental frequency, this study is designed to show quantitative changes in vocal pitch made by student actors automatically receiving reinforcement for target pitch response, as well as to present information about pitch characteristics of stage speech.

Method

Subjects

The subjects of this study were five theatre students enrolled at Florida State University. Two undergraduate females, two undergraduate males, and one graduate male (ages 17-24 years) participated. All subjects had histories of normal speech and hearing.

Apparatus

FLORIDA I consists essentially of a microphone, an amplifier, a frequency-sensing circuit, a timer which controls test time, and relays, one of which operates a white light and a stop clock. A second relay turns off the white light and the stop clock and turns on a red light. The lights are located both on the front of the unit and also at the base of a remote unit (a reading stand) which may be used some distance away. Two frequency limit controls are manipulated to create a target pitch range of variable width between 50 and 1000 Hz. The white light is activated automatically when the subject produces target vocal frequency at an adequate intensity level, and, optionally, the stop clock accumulates duration of on-target pitch production. Use of excessive intensity is punished by the activation of the red light which also turns off the white light and the stop clock for short periods of time, regardless of continued target pitch production.

Procedure

The sequence of investigation for each subject was divided into four phases: Baseline, Conditioning, Extinction and Generalization. During the Baseline phase, measurement was made of the subject's Habitual Pitch Level (HPL) in reading both prose (a standard passage) and dramatic material (a two-minute speech, put together if necessary, of one character from a contemporary play). The latter measure was termed the Interpretive Pitch Level, or IPL. Next the vocal frequency improvement projected for each subject was expressed as a specific frequency band which would be reinforced--the Conditioning Pitch

Level, or CPL. The subject then read the dramatic material in daily trials (four per day) while measurement was made of his pre-training use of his target CPL vocal frequency. No visual reinforcement for pitch production was provided during these Baseline trials.

After a baseline was established the subject was told the white light on the reading stand would respond to his voice, and he could improve his reading by keeping the white light on as much as possible; if the red light came on, he was doing something wrong and should change his reading. The subject was not told how to control the lights or the nature of the vocal behavior to which they responded: pitch (white light) and intensity (red light). The subject again read four trials daily, and the duration of his on-target CPL response was noted for each trial. Conditioning trials continued until the subject's use of vocal frequencies within the CPL band stabilized at a high rate.

An Extinction procedure was now begun in which the subject was asked to read in the manner which activiated the white light, although the light would no longer be available to guide him. The lights on the reading stand were then disconnected, and the subject read additional daily trials while the duration of his on-target CPL response was noted for each trial. Extinction trials continued until vocal frequency production within the CPL band again stabilized.

For the Generalization phase, two new samples of reading material were introduced in order to remove any possible influence upon the subject's ability to maintain changes in vocal pitch which could be attributed to his reading extremely familiar material. The subject was first given another two-minute speech spoken by the same character from the same play, and trials were again conducted with no visual reinforcement. When the duration of the subject's on-target CPL vocal frequency production stabilized, he was given a new passage from the same play which contained dialogue with a second character. An observer read the passage with the subject, although only the subject's vocal frequency was monitored and the CPL response duration noted. Generalization trials were

run, with visual reinforcement withheld, until the CPL response stabilized; the subject was then dismissed.

Automatic reinforcement for CPL vocal frequencies was provided only during Conditioning unless the subject's rate of CPL response decreased toward that for Baseline trials during either Extinction or Generalization. In that event, reinstatement of the availability of the white light was made until CPL response duration returned to the rate established during Conditioning. Fundamental vocal frequency profiles were plotted from a representative 40-second sample taken from one recorded trial each day for all subjects, to determine the nature and extent of the subject's changed vocal pitch.

Subjective confirmation of vocal pitch change was obtained by first selecting one recording from Baseline and one other phase for each subject. The recordings were edited and arranged as a single recording containing five pairs of identical-text sentences from each subject. The edited recording was played for twenty-four students in speech pathology who were asked to identify pitch level change between the first and second sentence in each pair; the sentences were played in random pair- and sentence-order.

Results

Typical changes in modal fundamental frequency level, range, and distribution for each subject are shown by overlapped fundamental frequency profiles in Figure 1. The profiles were made from individual sentences 5-12 seconds in length but are representative of the longer samples from which they are taken.

Identification of pitch level change between the two sentences for Subjects A,B,C and D was 96% or more correct; Subject E's pitch level change identification was 50% correct. The judgment procedure was repeated one month later; reliability was .95 for both

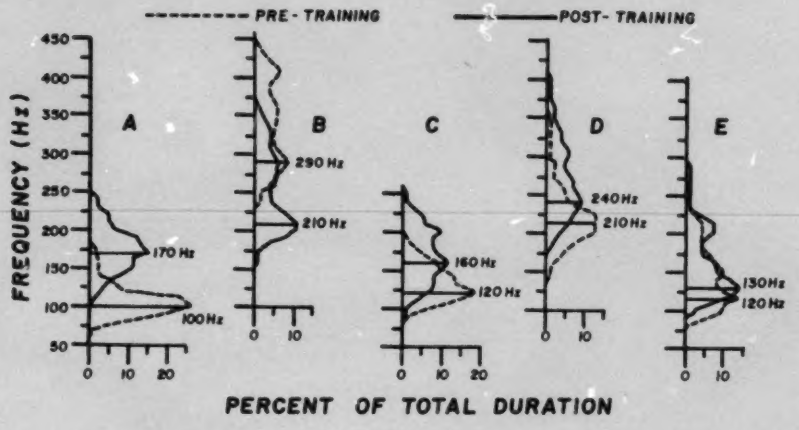

Figure 1. Representative vocal frequency profiles of all subjects. Horizontal lines show modal fundamental frequency.

procedures.[1] Subjects A and E, as well as Subjects B and D, interpreted the same role and their frequency profiles reflect the same sentence text.

The following vocal frequency characteristics

[1] An alpha reliability coefficient (Cronbach, 1951) was calculated for the judges for both trials. An interclass correlation coefficient was obtained for a typical judge and then corrected with the Spearman-Brown formula to predict the reliability for the group (see Guilford, 1956, p. 354).

were initially noted for each subject. Subject A read with a low level monotone, and 90% of his vocal frequency was confined to a three-fourth octave range. Subject B used extremely elevated pitch and also produced 90% of her vocal frequency within a three-fourth octave range. Subject C's pitch level was acceptable, but his vocal frequency distribution was concentrated in the lower half of his range; his 90% range was five-sixth octave. He also exhibited both suppressed pitch at the lower limit of his range as well as pitch breaks at the upper limit. Subject D also read with an appropriate pitch level, but more than half of her vocal frequency was distributed below the modal frequency; her 90% pitch range was only slightly more than one-half octave. Subject E used wide pitch shifts and inflections, and, for example, spanned two octaves in a five word phrase; his 90% pitch range was one and one-quarter octaves. In successive readings, his modal fundamental frequency varied as much as one-half octave, and his vocal quality was strained at both ends of his pitch range.

Subjects A and D were conditioned upward, Subject B was conditioned downward, and Subjects C and E were conditioned to confine their vocal frequency to a narrower range. All subjects achieved and maintained a high rate of vocal frequency response within their CPL target ranges. Table 1 shows response duration ranges and median values for all subjects during each experimental phase. For example, Subject A typically read with 83 seconds total response duration (total phonation) during a two-minute trial. During Baseline, his CPL vocal frequency response varied between 18-58 seconds per trial, with a median of 35 seconds; during Conditioning, his CPL frequency response increased to a median of 73 seconds, and continued to increase as he increased the amount of his phonation during each trial, evidence of greater vocal efficiency.

Only Subject E required reinstatement of reinforcement after its removal. He received reinforcement during four Generalization dialogue trials, after which he returned to a high rate of CPL frequency response without further reinforcement. Initially, Subjects B and D were quite rigid in their vocal behavior and relatively unresponsive to rein-

TABLE 1

RANGES AND MEDIAN VALUES OF TARGET FREQUENCY BAND RESPONSE DURATIONS IN SECONDS PER 120-SECOND TRIAL FOR SUBJECTS DURING EXPERIMENTAL PHASES

Subjects	Sex	Initial Maximum Response Duration*	Phases				
			Baseline	Conditioning	Extinction	Generalization I	Generalization II
A	M	83	Range 18-58	60-83	73-82	78-95	75-95
			Median 35	73	80	90	91
B	F	102	Range 18-48	28-91	68-76	75-88	**
			Median 34	49	73	81	**
C	M	93	Range 43-79	81-95	89-95	89-95	75-84
			Median 60	89	91	92	81
D	F	79	Range 40-72	40-77	53-74	**	**
			Median 56	71	64	**	**
E	M	94	Range 68-80	77-89	75-87	78-85	65-86
			Median 75	82	81	82	77

*For subject's entire pitch range.

**Not available.

forcement. Therefore, a short, 2-5 minute practice period was scheduled in which verbal praise was directly paired with the white light. Both subjects then rapidly increased their on-target CPL response. Subject B was unavailable for the dialogue trials; Subject D became ill and did not complete the experiment.

Each subject served as his own control, and his data were analyzed separately. Subject A raised his pitch level by three-fourths octave, shifted his pitch range upward by one-half octave, and increased his 90% pitch range to one octave. Subject B lowered her pitch level by almost one-half octave and shifted downward her upper and lower pitch range limits by one-third and two-thirds octave, respectively. Subject C shifted upward his pitch distribution within the range and was able to produce 80% of his vocal frequency within his CPL frequency band. Subject C also changed his vocal quality and no longer displayed pitch breaks or the suppressed pitch noted earlier. Subject D raised her pitch level and upper pitch limit by one-fifth octave and raised her lower pitch range limit by more than one-third octave. She also increased her 90% pitch range to slightly less than one octave, but she did not consistently maintain changed vocal pitch when reinforcement was removed. Subject E reduced his total pitch range by one-half octave and was able to confine 90% of his vocal frequency to his one-octave CPL frequency band. All subjects produced further vocal frequency change when given new reading material. Daily variations in pitch levels and range limits for all subjects are shown in Figure 2.

The total amount of automatic reinforcement received by the subjects and the period of time in which it was provided were as follows: Subject A, 34 minutes in four days; Subject B, 90 minutes in eleven days; Subject C, 50 minutes in seven days; Subject D, 65 minutes in seven days; and Subject E, 36 minutes in five days. Only Subject A correctly guessed that reinforcement was provided for pitch production.

Tables 2 and 3 present reading time and phonation time expressed as a percentage of reading time for each subject for each daily recorded trial except the dialogue trials for which these measures were not calculated. Subjects A and B, who accom-

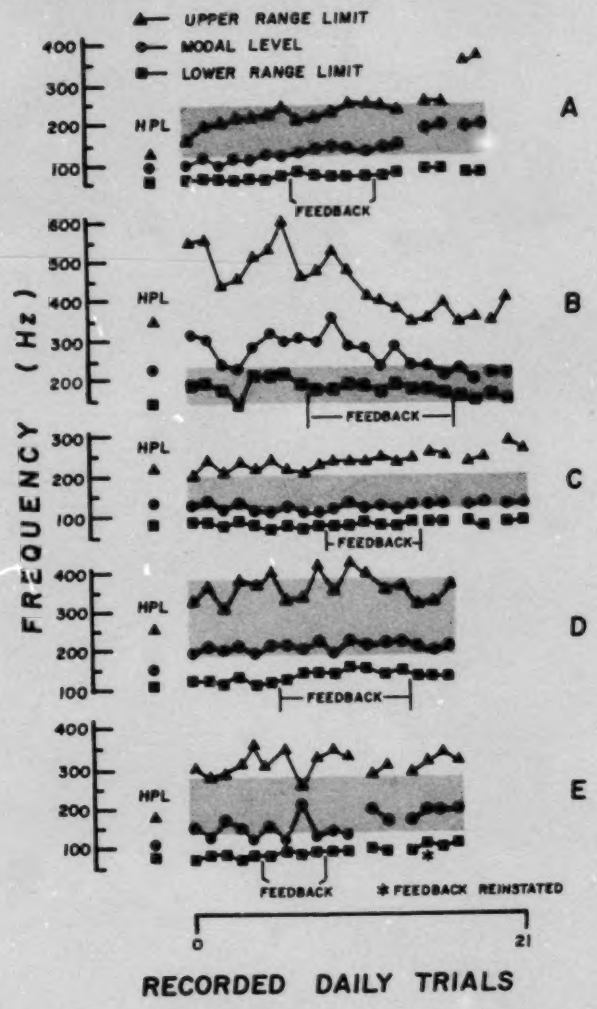

Figure 2. Vocal frequency characteristics of each experimental phase. Shaded area shows CPL range; severed lines indicate changed reading material.

TABLE 2

RANGES AND MEANS OF READING RATE
IN WORDS PER MINUTE PER 120-SECOND TRIAL
FOR SUBJECTS DURING EXPERIMENTAL PHASES

Subjects	Sex	Standard Passage		Phases				
				Preliminary	Baseline	Conditioning	Extinction	Generalization I
A	M	183	Range	132-143	127-135	132-156	143-146	164-173
			Mean	137	131	145	145	169
B	F	195	Range	177-224	177-181	156-181	162-173	147-153
			Mean	199	179	171	168	150
C	M	174	Range	203-214	175-193	175-188	188-193	207-211
			Mean	208	181	183	191	209
D	F	194	Range	-181-	166-185	173-185	173-177	*
			Mean	181	174	180	176	*
E	M	194	Range	186-195	181-200	186-200	-200-	210-219
			Mean	190	192	192	200	210

*Not available.

TABLE 3

RANGES AND MEANS OF PHONATION TIMES EXPRESSED AS A PERCENTAGE OF READING TIME PER 120-SECOND TRIAL FOR SUBJECTS DURING EXPERIMENTAL PHASES

Subjects	Sex	Standard Passage		Phases				
				Preliminary	Baseline	Conditioning	Extinction	Generalization I
A	M	56	Range	44-48	42-54	50-57	53-56	60-67
			Mean	46	48	55	55	64
B	F	67	Range	49-72	50-59	54-70	66-68	60-65
			Mean	59	55	62	67	63
C	M	68	Range	50-59	59-64	60-64	66-69	-63-
			Mean	55	62	62	68	63
D	F	73	Range	-50-	52-59	45-55	50-53	*
			Mean	50	55	51	51	*
E	M	74	Range	**	60-71	60-68	66-69	64-65
			Mean	**	66	64	68	65

*Not available.
**Data obtained with different equipment.

plished the greatest amount of pitch change, also changed their reading rates and phonation times to values nearer norms for good oral reading. A decrease in reading rate with no change in phonation times indicates lengthened vowel duration. In the case of Subject B, lengthened vowels were apparently substituted as a means of emphasis when she was denied high pitch excursions.

Conclusions

The results indicate that vocal pitch in interpretive speech may be manipulated through application of principles of reinforcement, even in the absence of direct instruction to modify pitch behavior. There would seem to be a number of practical applications of the findings of this study. For example, it seems reasonable to conclude that it is not necessary for a student to hear a given pitch (perform auditory discrimination) in order to produce it. Further, so long as the nature of the reinforcement chosen does not disrupt the student's speech, a teacher or other person trained in pitch discrimination could probably substitute with some effectiveness for the instrument used here by following the principles of reinforcement demonstrated. An isolated sentence or passage of no more than 15 seconds in length would probably be sufficient for the practice material used to introduce vocal pitch changes to the student. And finally, the positive correlation (which has been previously found by researchers and is confirmed here) between pitch level and pitch range as well as pitch level and reading rate, should be kept in mind in the teaching of pitch techniques in oral interpretation.

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WHAT YOU SEE IS WHAT YOU GET: BLACK AS VICTIM

Louie Crew

Flip Wilson's maxim, "What you see is what you get," yields interesting insight when applied to audiences with racial expectations from drama. It suggests that an audience conditioned to expect racial meanings for interracial episodes will indeed find racial meanings to fulfill these expectations, regardless of the intentions of playwrights or performers. For example, an audience regularly accustomed to seeing Blacks as victims of Whites predictably will see Black actors as victims of White actors, even in dramatic episodes inviting a variety of alternate interpretations.

An informal investigation of an all-Black audience at Claflin College in Orangeburg, South Carolina, provides intriguing support for such an application of Flip Wilson's maxim. In responding to a series of abstract non-verbal performances by a White instructor and a Black classmate, the student audience frequently interpreted racial themes where a variety of non-racial interpretations were equally plausible. Furthermore, fairly consistently the Black audience interpreted the roles played by the Black actor as roles of a victim, even where the Black actor was ostensibly and physically in control of the White actor. Hence, the corollary to Wilson's maxim: the Black audience did not "get what it could not see," in spite of the evidence of its senses, *viz.*, the Black man in control of his own destiny while sharing the stage with the White man.

The structure used to discover this pattern of racial reaction was uncomplicated. A dramatics class of twenty students arrived expecting a discussion of assigned materials. Instead, on stage were two familiar figures, the instructor (author of this account, White) and a classmate (Mr. Felton Eaddy, Black, poet, author of *If I Hold My Tongue* [Peaceweed Press, 1973]). The two alternated in introducing a special event, explaining that there would be eight non-verbal exercises and that after each, the students would be asked to write their interpretations. Unknown to the audience was the fact that the exercises were designed to minimize the two most obvious differ-

ences between the performers in their life off-stage --viz., their differences in race and their differences in station (instructor/student). In their stage roles, neither actor exploited these off-stage realities. To the contrary, roles for each were equally balanced in terms of the amount of time each controlled or was controlled, the degree of power each enjoyed, etc. Four of the exercises pitted the performers in situations where they had equal strength, and four where they had unequal strength.

Exercises of Equally Strong Performers

Two of this group of exercises were resolved in mutual acceptance. The performers followed these instructions:

Exercise 1. Both are friends in a happy struggle over one chair, preplaced in stage center. If one sits in it, the other makes him uncomfortable. So with the other. After two minutes or so, they simultaneously spot a second chair at stage right. Together they bring it stage center. Each offers the other a chair. Both sit together and watch the audience.

Exercise 2. Instructor occupies stage left, student stage right; both move simultaneously in separate and equal circles; first they crawl, then walk, then comfortably jog; circles begin small and grow larger simultaneously; each remains happily aware of, but independent of, the other; as soon as circles are capable of being tangent, the two meet at stage center at the same time; they shake hands.

Racial interpretations to these two exercises were less frequent than to the others. No. 1 produced two such responses (10%), one stressing the mutuality intended--"It means brotherly love and sharing between two races"--but the other holding a curious reservation: "A Black man struggles for equal opportunity and finally achieves his goal; yet the White man still has the authority" [italics mine]. No. 2 produced five racial interpretations (25%), two of which emphasize the mutuality (e.g., "Black and White solve the problem of co-existence by coming together "), but

three of which find the encounter at least mildly suspect:

A. "Black and White men are in a race to make it to the top."

B. "It seems that Blacks and Whites are coming through badly to be on the same range."

C. "A Whitey is trying to do the things the Black man is doing. He finally thinks [italics mine] that he's got a Black friend or a brother."

Of the other two exercises in which the performers were intended to be equally strong, one ended in unresolved hostility and the second in mutual death:

Exercise 3. Both occupy separate halves of the stage. For two to three minutes the student sets up a series of movements in his space, which the other imitates in his space; then, when they both raise hands simultaneously, the roles reverse in that the instructor makes a series of different movements, which the student in turn imitates. When both raise hands together again, the movement stops.

Exercise 4. A duel: both enter in a straight line from separate wings, walk to each other, shake, do a formal about-face, walk ten paces, each counting out ten in time together, turn quickly on "ten," both fire, both fall dead.

Interestingly the duel produced only one racial interpretation (5%), the least of all eight exercises, and that one emphasized the equality of the two performers--"Two races on an equal footing." In contrast No. 3 provoked five racial interpretations (25%), only two of which emphasized mutuality (e.g., "The Black guy was being imitated by the Redneck. Vice versa."). Two interpretations were decidedly anti-White:

A. "Whites are trying to act like Black men."

B. "The Black race is trying to keep up with the White; or, what you can do I can do just as good."

One interpretation was anomalously, subtly anti-Black: "The game is 'Follow the Leader': there is a Black follower to every White leader."

Exercises of Unequally Strong Performers

The remaining four exercises pitted the characters against each other with clear differences of strength. In two the instructor-performer was clearly dominant, while in the other two the student dominated. This group of exercises produced almost twice as many racial interpretations as did the first group (24 as opposed to only 13). One wonders whether this increase reflects the students' greater experience with race where the two races are not perceived to be on an equal footing.

One pair of exercises alternated the performers in supervisory roles:

Exercise 5. Instructor sits stage center, trying to fill out a government form, and he is clearly not very literate. Student performer is a government official responsible for showing him how to do it but also responsible to see that he does not cheat. Complete when after several tries the form is accepted.

Exercise 6. Student enters with a ladder prepared to set it against the other's house, which he has been hired to paint. Instructor is disturbed because the painter is careless. When he suggests that the other is spilling paint, the other feigns to listen, but does it his own way. Instructor watches in silence.

Audience responses evoked curious biases in the racial interpretations of these exercises. Some viewed the White performer as the villain of both pieces. One emphasized that in No. 5 the student "is caught cheating; can't count; is dumb;" but instead of seeing the painter in No. 6 as inept, stressed: "Mr. Charlie tells Joe to hurry and finish painting his house so he can get out of sight because company is coming. A Black man does all the work." Similarly, another respondent celebrates the Black supervisor--"The teacher lets the student get by"--but even refuses legitimacy

to the supervisory capacity of the White performer: "Two people were supposed to be painting [italics mine], but only one did, while Whitey stood around and gave directions." Again, another pitted "the dumb White student" in No. 5 (with no hint of his being a possible victim) against the "overseers and slaves" in No. 6. The pattern that emerges in the responses is that a student, once identifying the instructor-performer in a White role never allows the White to be a victim: rather, he is held accountable, responsible for his problems with Blacks. The reverse, however, is not true. The painter, once identified as Black, is never allowed to be responsible for his problems with the White supervisor. White is wrong. Black is right.

The most numerous and the most volatile responses were evoked by the final pair, in which alternately each performer played the role of a servile animal:

Exercise 7. Instructor is a mule. Student rides the mule's back. Together they move from stage left to stage right, leaving by the wings.

Exercise 8. One movement across stage; instructor is plowman, student his mule, pulling the plow.

The tendency in No. 5 and No. 6 to see the Black man in completely positive terms persisted with these two. When the White performer was the animal, one student said, "A young man is attempting to train a wild horse;" but when the Black man was the animal, he said, "The Black man is under the confines of a White master." Other respondents reveal the same pattern of pro-Black biases:

7. A Black man overpowers the White: A strong Black nation begins to arise.

vs.

8. A man plowing. No meaning.

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7. A Black man rides the back of the White to get his freedom.

vs.

8. The White man drives the Black man.

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7. A White man being ridden by a Black boy. It meant nothing to me except the man didn't want the guy on his back.

vs.

8. A man being used as a horse. It meant that the White man has always used the Black man for his purposes.

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7. I saw two men: one was riding a horse.

vs.

8. One man was plowing a mule: White is still in charge.

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7. A rodeo: Whitey is trying to get back on the top.

vs.

8. Plowing: The White man always uses some power other than his own.

Thus, exercises designed to minimize the racial differences of two performers produced audience interpretations that were 23% racially oriented (i.e., 37 out of 160 possible responses of the 20 students for the 8 exercises). Many of these responses reveal clearly that the Black audience used different criteria in inferring racial meaning to the actions of the two performers. When race entered the reactions, in general the audience saw the Black performer as always right, either as victim or as supervisor, never as victimizer; correspondingly, however, they always saw the White performer either as a victimizer or as one perniciously responsible for his own inadequacies. Interestingly, in the 77% of the interpretations which were not racial, no similarly consistent bias was revealed against the roles played by the White performer

or for the roles played by the Black performer. It is as if once race became an explicit factor, it altered what one saw.

The other extra-exercise difference between the performers--viz., their difference in station (student/instructor)--had far less explicit influence on responses of the audience. In Exercise 5, for example, where the "real life" instructor appears to be a student on stage, all but two of the respondents readily accepted the shift in their descriptions of the exercise. The two exceptions uniformly referred to the two performers by their real names and titles. Even the age differences of the performers (35 vs. 21) provoked no noticeable influence on audience interpretation. Both were at times identified as "children," "small boys," "Black boy and White boy," and "young men." The standard non-racial referrents were "a man," "two men," "a person," "two people," etc. Two students not taking a racial interpretation of No. 3 even referred to them as "shadows of each other;" and frequently non-racial interpretations identified the two as "brothers" in the four exercises wherein the performers were evenly matched in strength. Similarly, no responses seemed influenced by any real or interpreted difference in the dramatic talent of the performers. The only response that seemed to imply anything about talent was a generalized compliment in one student's addendum: "All eight of them conveyed that acting takes a lot of guts to do stupid things to be effective."

Since the exercises came after several weeks in a dramatics course emphasizing dramatic controls, it was expected that many interpretations would explicitly emphasize control, but only eight respondents did so. These eight (40%) are fewer than the twelve (60%) who did at some time make racial interpretations.

In the final analysis, it is hardly surprising that racial interpretations occurred where nothing was explicitly racial. After all, the exercises occurred in South Carolina, and it is only 1974: Whites still control, however subtly or indirectly, the lives of the Black audience of these exercises. Perhaps the surprise is that forty percent of the audience did not write race into their interpretations. Nor

is it surprising that the sixty percent who did, emphasized race clearly employing differing criteria for the White and Black performers, making the White always "bad," the Black always "good." (Unsympathetic and sympathetic is another way of stating the contrast.) In a time of crisis, it is perhaps natural to gather strength unto one's own, not to look for ways to be tolerant towards one's enemies.

What is disturbing, however, is the assumption that for a Black person to see Blackness as always sympathetic (at the very worst allowing a Black person only to be a victim) is perhaps to give to or to sustain for Whitey his most vicious power advantage, viz., making him responsible, accountable, while never accepting Black men and women as responsible, accountable. Thereby, ironically a Black audience reduces Black people to objects, automatons, not fully developed, integrated, responsible human beings. This is one of the tragedies of what Louis Lomax calls "Black Racism: The Hate that Hate Produced" (To Kill a Black Man). The hate turns in on itself with a vengeance.

One wonders how much such racial attitudes affect what Black audiences see in the many Black plays today which are overtly racial. For example, in Leroi Jones' celebrated play The Toilet, a White homosexual is dumped in a high school toilet by a group of Blacks purging their ranks of such sickness. If all the racial roles were reversed in Jones' play, the White becoming Black and vice versa, would not the now Black homosexual be the abused victim of a vicious White society? Similarly, if Shaft were to become a White Citizens' Councillor, would not his same deeds become "irresponsible?" If so, is it not dangerous fantasy never to allow one's own kind of people to be damned, never to risk mortality itself?

Again and again Black writers emphasize the problems of affirming Black manhood in twentieth-century America, especially vis-a-vis the White culture in which "Nobody knows my name" or one remains an "Invisible Man." If Black models of successful manhood go no further than the fantasies of Shaft and Superfly and if Black models of tragic manhood go no deeper than that of non-responsible victims of White oppression, perhaps manhood is indeed dangerously up

for grabs.

"What you see is what you get."

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THREE COMPONENTS OF THE ACTOR'S NONVERBAL REPERTOIRE: POWER, IMMEDIACY, AND RESPONSIVENESS

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This discussion of the actor's nonverbal repertoire is cautiously limited to three more or less neatly circumscribed metaphorical dimensions since neither author pretends to possess theatrical competency. In spite our thespian ignorance, we do believe that the field of nonverbal communication can offer an intriguing perspective, a taxonomy if you will, for assessing the impact of an actor's nonverbal activities.

Accordingly, the task here is approached not as an empirical thesis, nor as an avenue for conceptual or theoretical advance, but as an opportunity to suggest one useful and creative metaphorical device for classifying human nonverbal feelings and attitudes. We begin by surveying the semantic origins of the three metaphors.

Semantic Origins of Power, Immediacy, and Responsiveness

Charles Osgood and his associates (1957) suspected that when one attributes "meaning" to a concept, a number of underlying factors may or may not come into play as the individual formulates a "Gestalt" for that particular concept. Osgood went on to suggest that each concept can be allocated to a point in multidimensional semantic space. The task then becomes one of operationally describing the dimensions that characterize the semantic space for a concept or concepts for an aggregate of individuals.

The development of the semantic differential by Osgood *et al.*, resulted in a method for quantifying the measurement of connotative meaning. Repeated application of this instrument has led to the consistent conclusion that three factors seem to describe most adequately the variance in human semantic judgments: evaluation, activity, and potency. Of these three factors, evaluation accounts for approximately double the amount of variance due to either potency or activity. Osgood has cautioned that a large portion of the *total* variance attributed to connotative meaning is still largely unaccounted for; hence, there are probably other important dimensions of meaning

which are operating but remain to be tapped.

Translating Semantic Dimensions to Corresponding Nonverbal Codes

Albert Mehrabian (1971) noted that many findings derived from studies of nonverbal communication show a remarkable metaphorical correspondence to the three principal connotative meaning dimensions isolated by Osgood et al. For instance, evaluation allows us to approach or avoid something or someone; potency gives us a clue to the power that can be exercised over us; and activity lets us know how active or passive (responsive) someone or something is.

Using slightly different terminology, Mehrabian coined "immediacy" (referring to liking or positiveness) as the metaphorical concomitant of evaluation; "power" (referring to status or dominance) as the metaphorical equivalent of potency; and "responsiveness" (characterizing the fluid potential of human feeling) as the metaphorical substitute for activity.

These three primary feeling dimensions, Mehrabian maintains, form the common denominators in our nonverbal experiences of things, events, and people. Thus facial expressions, vocal expressions, hand gestures, and postures (to mention a few) can all be related to the nuance of feeling that is generated by the interface of the three primary dimensions.

In general, then, Mehrabian's metaphorical taxonomy allows one to dissect a person's nonverbal repertoire into meaningful and subtle components which can be related to "Gestalt" impressions of attitudes and feelings. Such a system of classification provides the interested student with a relatively easy-to-use framework for understanding the complexity of human nonverbal communication.

We now turn to a discussion of a rather unique construct, the "Double-Edged" message. Notwithstanding the prepotency of the three metaphors in any communication situation, the impact of inconsistent verbal and simultaneous nonverbal messages clearly illustrates just how dominant the nonverbal portion

of a total message can be.

The Double-Edged Message

In the early 1960s, family therapists wrote about what they termed "inconsistent messages." These inconsistent messages were characterized by apparent contradictions in the messages sent in the verbal and nonverbal channels. Such behavior is aptly illustrated in the classic courtship colloquialism, "You're words say 'no, no', but your eyes say 'yes, yes'." The research of Mehrabian (1972) and Argyle (1969) support the premise that: in the face of contradictory verbal and nonverbal cues, we are more likely to believe the message conveyed nonverbally. While such findings may represent adult response tendencies, there is some evidence that young children may be less certain which set of cues (verbal and nonverbal) dominate; hence, children may opt for the verbal more often than adults. Some psychiatrists, furthermore, even predict that children habitually faced with inconsistent messages may be more prone to schizophrenia. Thus, parental inconsistent messages, frequently accompanied by negative nonverbal sanctions, can lead to the maladjustment of their children when used habitually.

Double-edged messages serve many functions. For example, there may be instances in which we find it difficult to be direct in order to achieve our personal and social goals. As Mehrabian (1971) indicates:

> Implicit and explicit social rules sometimes dictate certain ways of acting that are strongly at odds with our true feelings in some situations. At these times, we often send inconsistent messages in which we quite literally pay lip service (verbal message) to social convention, while nonverbal messages betray our real feelings. (p. 50)

Most commonly, inconsistent messages are used to convey sarcasm and indicate liking in novel ways--e.g., "I hate you!" said between two lovers while embracing. Also, when dominance or status would elicit defensiveness on the part of the receiver if

it were communicated through both verbal and nonverbal channels, we may use verbal cues to offset the potentially strong negative impact of overpowering nonverbal dominance cues--e.g., the field commander who forfeits special personal privileges by publicly announcing that he wishes comforts identical to those provided his troops.

Can actors be trained to exhibit simultaneous verbal and nonverbal cues that contradict one another? Mehrabian and Wiener (1967) looked specifically at the immediacy dimension. They had actors communicate the word "maybe," which conveys little verbal affect with positive and negative facial and vocal expressions. Repeated over many subjects and stimulus conditions, these manipulations led to the formulation of a simple linear model:

Total liking = 7% verbal + 38% vocal + 55% facial liking

From the model it is apparent that in the case of inconsistent messages relating to liking, facial expressions are the most potent (55%) with the vocal component ranking second (38%). Mehrabian's work suffers from some empirical imprecision and should therefore be accepted cautiously before generalizations can be drawn to those situations where larger message units constitute the criterion of inconsistency.

As for the other feeling dimensions, power and responsiveness, Argyle et al. (1970) found some support for Mehrabian's regression equation. They looked specifically at potency communicated implicitly in the nonverbal channel and in varying degrees verbally in the same message. Again the nonverbal portion of the message dominated with respect to the total feeling conveyed. No investigators have tested the equation against the responsiveness dimension.

Finally, Dennis et al. (1973) trained three experimental confederates to exhibit nonverbal confidence and doubtfulness. The actual manipulation occurred in a group conformity situation where the confederates were unanimous in their verbal decisions, but either unanimously confirmed or contradicted the verbal decision nonverbally. Five nonverbal cues were specifically controlled to produce the desired

nonverbal condition: (1) head movement, (2) palm position, (3) lip configuration, (4) body angle, and (5) vocal intonation. To test the effectiveness of the nonverbal manipulations, subjects estimated how confident the confederates behaved during the experimental exercise. The results indicated that subjects' perceptions of confederate confidence could be altered, depending upon the arrangement of the five nonverbal cues which were manipulated. This finding was true even when it was apparent to the subjects that the confederates were making unanimously accurate verbal decisions!

A Taxonomy for the Metaphors

In Table 1, we have classified specific nonverbal behaviors according to the metaphorical dimensions described by Mehrabian (1971). One or two cautions are in order. While metaphors share an important function in human thought (as Mehrabian, 1971, puts it, "Metaphors draw upon the elementary and familiar aspects of sensory-perceptual experience...." --p. 135), by definition, they abstract reality. There may exist in the universe of nonverbal meaning other significant dimensions which have yet to be tapped by existing research methodologies.

Secondly, it will become apparent from studying Table 1 that there may be substantial common variance shared between dimensions for certain behaviors. For example, less proximal distance may be associated with increased liking, a more symmetrical status relationship, or both. In other words, the context and the accompanying cues during the communication event are extremely important considerations for attributing nonverbal meaning. Incidentally, Miller (1972) punctuates this point in his discussion of the naturalistic tradition associated with Western theatre.

Testing the Taxonomy

How might the taxonomy be employed to assess the impact of an actor's nonverbal activities? Mehrabian (1972) has developed a series of semantic differential scales for each of the three metaphorical dimensions. An interesting application of Mehrabian's instrument would necessitate obtaining audience rat-

TABLE 1

SUMMARY OF CUES APPROPRIATE FOR EACH METAPHORICAL DIMENSION

IMMEDIACY (liking	POWER (status)	RESPONSIVENESS (activity)
--forward lean	--more distance (lo status)*	--change in body activity
--closer proximity	--less eye contact (hi status)	--proximal movement
--more eye contact	--arms akimbo (hi status)	--expressive facial
--open arms & body	--low voice volume (lo status)	--spontaneous gestures
--direct body orientation	--postural relaxation (hi status)	--shifting postures
--increased touching	--dress-ornamentation of the power symbols (hi status)	--vocal variety
--positive facial	--greater territorial access (hi status)	
--positive vocal	--large size-strutting, expansive movements & postures (hi status)	
--postural relaxation	--height-standing upright vs. bowing (hi status)	

* When in the presence of a person of high status, the lower status person will "keep his distance;" on the other hand, this behavior is partly a result of the need for higher status persons to maintain vast territories--e.g., the typical executive suite with the large desk.

ings of an actor's performance at select points during his presentation. The investigator could then determine if audience perceptions corresponded to the connotative affect intended by the actor (called for by the script, etc.)--e.g., low liking, high status, and low responsiveness.

Another variation for applying Mehrabian's instrument would call for self-ratings by the actor, before and after a designated performance segment; or in conjunction with simultaneous audience ratings. This procedure would enhance the diagnostic capabilities of Mehrabian's scales.

TABLE 2

SCALES TO ASSESS MEHRABIAN'S METAPHORS

Dimension	Descriptors		
PLEASANTNESS	happy	-	unhappy
	pleased	-	annoyed
	satisfied	-	unsatisfied
	contented	-	melancholic
	hopeful	-	despairing
	relaxed	-	bored
RESPONSIVENESS	stimulated	-	relaxed
	excited	-	calm
	frenzied	-	sluggish
	jittery	-	dull
	wide awake	-	sleepy
	aroused	-	unaroused
DOMINANCE	controlling	-	controlled
	influential	-	influenced
	in control	-	cared for
	important	-	awed
	dominant	-	submissive
	autonomous	-	guided

Note: Seven-point scales were used by Mehrabian (1972) to achieve the following reliabilities: (a) Pleasantness--.79; (b) Responsiveness--.65; and (c) Dominance--.83. These reliabilities were determined in judgments of facial affect only; however, the scales can be generalized for any configuration of nonverbal activity (e.g., posture, gestures, proximity, etc.).

Table 2 presents the bipolar descriptors for each of the metaphorical dimensions. Other items could be added at the discretion of the researcher to assess more adequately the particular context of a given performance. Also note that Mehrabian uses slightly different terminology to identify two of the metaphors, i.e., "Pleasantness" instead of "Immediacy" and "Dominance" in place of "Power." It should be obvious, however, that the connotative domains of these paired concepts are relatively analogous.

Conclusion

We have attempted to demonstrate how one particular scheme for synthesizing the overwhelming matrix of nonverbal behaviors might have utility for the theatre student. In this sense, then, we are advancing a hypothesis that awaits empirical confirmation. Hopefully, some of the ideas discussed in this paper will provoke imaginative approaches and new insight into problems relating to the actor's nonverbal environment. It is probably safe to say that for the study of nonverbal behavior in general, and its application to the theatre in particular, the unique configuration of the acting personality offers a potent laboratory for further exploration of nonverbal behavior.

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IMPLEMENTING AUDIENCE ANALYSIS FINDINGS

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Audience analysis is not a new or unique concept in theatre. Analyses have been made of various theatre audiences. Morison and Fliehr (1963) published the results of an extensive analysis of the Guthrie Theatre audiences. The UCLA Theatre (1964) completed a subscribers analysis. A post mortem of the Front Street Theatre was conducted by Conrad (1969) and other audience analyses have been conducted as thesis and dissertation projects.

The primary purpose of those studies was to obtain demographic profiles of theatre audiences. While such profiles provide valuable information about the characteristics of theatre audiences, very little use has been made of that information.

This paper reports a two-phase study in which data gathered through audience analyses were used to improve conditions in which plays were viewed at the University of Delaware. The purpose of the analyses was to obtain information about the composition, expectation, motivation, behavior and taste of the audiences attending the University of Delaware Theatre. The data were then used in making decisions about what steps could be taken to increase audience size without compromising educational theatre values.

Two separate questionnaires were designed to gather data in the two phases of this study.[1] When constructing the questionnaires, survey and questionnaire methods texts by Oppenheim (1966) and Moser (1958) were reviewed, the Guthrie Theatre Survey questionnaire was examined and an attempt was made to employ the design principles suggested or implied in those sources. In both phases of this study, questionnaires were distributed to theatre audiences at the beginning and collected at the end of intermissions. The data gathered from the completed questionnaires was transferred to computer scan sheets and submitted to computer analysis.

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[1] Copies of the two questionnaires can be obtained by writing to the authors at the University of Delaware.

Phase One

The first phase of this study involved an analysis of the audiences attending Friday and Saturday evening performances of Harold Pinter's The Homecoming during the spring of 1971. The purpose of the phase one analysis was to obtain a profile of the audience attending the University of Delaware Theatre, to discover what motivated the audience to attend The Homecoming, to determine how well the members were enjoying the performance, and to secure other incidental information which might suggest reasons for poor attendance or ways to increase attendance.

The results of analysis of the date indicated that the audience which attended the play was composed of slightly more females than males, that a two-thirds majority was single, that three-fourths had no children, that a two-thirds majority was in the 18-25 age category, that slightly more than half the audience was college students, that most of the audience had some college education, that the total family income of the majority of the audience members ranged between ten and twenty thousand dollars and that most lived within five miles of the theatre.

When the audience members were asked which one or more of several ways they had heard about the play, over fifty percent indicated that they had heard about it from a husband, wife or friend. Fifty percent had learned of the performance from posters, thirty percent had read about the play in critical reviews, thirty percent had seen newspaper ads and thirty percent had read newspaper stories. Very few members of the audience had heard the radio announcements or received the mail fliers. Thirty-six percent of the audience indicated that the one factor which motivated them to attend the performance was a husband, wife or friend. Seventeen percent said that the primary factor motivating their attendance was the name of the play or playwright. Newspaper ads, mail fliers and radio announcements were the least often mentioned factors motivating attendance.

A majority of the audience indicated that their favorite type of play was comedy or musical comedy. Nevertheless, the vast majority indicated

that they were enjoying The Homecoming and that the play was meeting their fairly high expectations. Most of the audience had purchased their tickets in person. While few had gone out to dinner prior to the play, many planned on refreshments after the play.

Many audience members wrote additional comments in the space provided at the end of the questionnaire. A large number of the comments complained about the physical plant, especially the seating and acoustics. Most comments about the play were favorable but some complained that it was "obscure," "weird" and "too far out." Comments about the acting were generally favorable,but one audience member wanted the pace quickened and another felt the acting was uneven. The direction was mentioned infrequently but in a complimentary fashion, the set and lighting were generally praised and a number of audience members called for "more musical comedies."

The findings of the audience analysis completed in phase one of this study were implemented with the following actions:

1. Since radio and mail flier advertising were found to be largely ineffective in informing people about performances or motivating attendance such advertising was curtailed. The money previously spent on radio and mail flier advertising was used instead for ads in university and community newspapers.

2. "Word of mouth" appeared to be one of the most effective forms of advertising. In an attempt to employ this phenomenon to increase audience size, new groups were invited to attend the theatre free of charge. Guest groups were selected from people in occupation classifications which the survey revealed did not attend the University Theatre, i.e. craftsmen, foremen, laborers and retired persons.

3. Married audience members were found to buy tickets by mail. To facilitate such ticket purchases mail coupons were included in newspaper advertising.

4. By informing local restaurants that the results of the survey indicated that most audience

members planned to go out for refreshments after the theatre, it was possible to convince them to advertise in the theatre program and to purchase advertising on the theatre envelopes.

Phase Two

The second phase of this study attempted to supplement the findings of phase one. More particularly, in phase two an analysis was made of the audiences attending the Friday and Saturday evening performances of Henry IV, Part I during the winter of 1972. The purposes of this analysis were to learn about the audience's motivations for attending the play, to discover their reactions to the production, to learn how reviews affect the way they respond to a production, and to determine what they want from theatre and what they feel they are getting from theatre.

Responses to the questionnaires indicated that the audience which attended the Friday and Saturday evening performances of Henry IV, Part I was composed of about ten percent more females than males, and that seventy percent of that audience indicated that the one factor which most influenced their attendance was that the performance provided an evening's entertainment. Eighty percent of the audience said that they found the production of Henry IV, Part I to be interesting or stimulating.

Reaction to direct audience participation in a play was generally negative. About twenty percent of the audience members indicated that it frightened them and eight percent indicated that they felt that it was not necessary. Over seventy percent indicated that they preferred just to watch and listen while in the theatre. Also, while about fifty percent of the audience indicated that they would like to feel free to respond openly but needed encouragement to do so, the other fifty percent indicated that they resent being urged to participate.

While sixty percent of the audience members indicated that they did read reviews, fifty-seven percent said that they preferred not to read reviews prior to attending a production. Nearly seventy per-

cent of the respondents said that a favorable review could significantly increase their desire to see a show. Eighty percent of the respondents indicated that they felt that reviews did not significantly influence their opinion of a production.

Entertainment, intellectual stimulation and a moving experience were what the audience said they wanted most from theatre, and a distinct preference was shown for entertainment. Very few members of the audience expressed the desire for theatre to heighten their awareness of social issues. Ninety-eight percent of the audience members indicated that they were getting entertainment from theatre, eighty-six percent said that they were getting intellectual stimulation, seventy percent felt that they were getting heightened awareness of social issues. In response to the question, "Is theatre a necessary part of your life?" forty-three percent of the audience members responded "yes" and fifty-seven percent responded "no."

The comments written in the space provided on the second questionnaire were quite similar to those made on the first. The physical plant was again criticized, the acting, directing, set and lighting were again generally praised and some audience members again called for "more musical comedies." However, no one complained that the play was "weird" or "far out."

Implementation of the findings which resulted from the analyses completed in phase two was accomplished as follows:

1. Because audiences expressed an aversion to audience participation, inclusion of this technique in the theatre season was postponed. However, since suspension of the technique might not be in the best interests of the theatre and education in general, some form of audience participation may be used in future productions.

2. The university administration was informed of the complaints about the physical plant and some funds have been allocated for remodeling. Since the survey proved to be a valuable source of public

comment on the theatre facilities, plans have been made to continue to provide university officials with such information in order to substantiate requests for improving seating and acoustics.

3. Since audience members surveyed expressed a strong desire for musicals, an American musical was added to the theatre season in the hope of increasing attendance while providing performers and audiences with a theatrical experience previously not provided on a regular basis at the University of Delaware.

With few exceptions, the attendance at each post-survey production was greater than the attendance at the pre-survey productions. The increases in attendance ranged from 22% to over 60%. The 60% increase in attendance occurred when full implementation of the survey results was made. Thus it was reasoned that the implementation of audience analysis findings contributed significantly to the increases in theatre attendance.

It was interesting to note that the theatre audiences seemed to enjoy completing the questionnaire during the intermission. The only question which a sizable number of people refused to answer concerned total family income. The only complaints made were that some questions on the questionnaire were vague and that the questionnaire was repetitious.

It should also be noted that in this study the data from questionnaires were transferred to optical scan sheets read by a scanner and tabulated using the test scoring program at the University of Delaware.[2] It was thereby possible to complete analyses which otherwise would not have been feasible because of the tremendous amount of time and effort which would have been required to make the necessary tabulations. Thus, computerized analysis of the

[2]Documentation for the test scoring program used in this study may be obtained by writing to the Computing Center at the University of Delaware.

questionnaire data made it possible to determine not only the responses of the general population (all those people who completed the questionnaire) but also the responses of designated sub-populations (married, over fifty, income ten to twelve thousand dollars, etc.).

Plans have been made to continue to computerize audience analyses at the University of Delaware Theatre and to implement the findings. The procedure is recommended to you.

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DIRECTOR EXPECTANCY AND ACTOR EFFECTIVENESS

Keith A. Miller and Clarence W. Bahs

The effects of one's expectation of another's behavior is not a new concept to those working in the social sciences and should not be alien to those working in theatre. Simply stated, the concept says that one's actions and behaviors are in some degree affected by another's expectations. Expanding this line of thought, this experiment was designed to determine whether a director's preconceived expectation of an actor's potential ability could ultimately affect a performance by that actor. Specifically, this study tested the effects of a director's expectation of good or poor performance by his actors in a short scene on the judged effectiveness of the acting.

Related Research. The primary researcher in the area of the expectancy phenomenon has been Robert Rosenthal. Over a decade ago, Rosenthal and Fode (1963b) gave photographs previously judged "neutral" to a group of experimenters to administer to their subjects. The experimenters showed each of their subjects a series of faces which the subject rated on "degree of success or failure" on a scale of +10 to -10. The experimenters were given identical instructions on how to administer the test with one exception. Half the experimenters were told that the "well established" finding was that the subjects would rate the photos positively while the other half were told the subjects would rate them negatively. In spite of the fact that all experimenters read the same instructions to their subjects, it was found that they still managed to convey their expectancies. Experimenters who anticipated positive photo ratings received them while those expecting negative ratings received negative ratings.

Those results inspired a number of other studies investigating the various effects of expectancy phenomenon. By 1969, well over 100 studies relating to expectancy effects were known to have been conducted (Rosenthal, 1969), and by now a great many more have undoubtedly been run. To be sure, not all the studies have shown conclusively the existence of the effect, but enough have done so to tantalize one's experimental imagination. Among those revealing

positive results have been studies showing that tone of voice alone was enough to convey the experimenter's expectations of results. Subjects exposed to tape-recorded instructions were influenced just as much as those exposed to live experimenters (Adair and Epstein, 1967). Children's IQ scores have been shown to be influenced by experimenter's expectations (Larrabee and Kleinsasser, 1967) and by teachers' expectations of pupils' performances (Rosenthal and Jacobson, 1968). Marwit and Marcia (1967) found subjects interpreting Rorschack ink blots either as animals or human beings depending upon what the examiner had been led to expect. Johnson (1967) even found that subjects could be led to drop more marbles through a particular hole in a table by expecting them to do well. Miller (1970) found that the expectancy effect extended to typical attitude change settings as well. After exposure to the same tape-recorded message, subjects responded either positively or negatively depending on the experimenter's expectation.

The list of studies goes on and on and this is but a brief sampling. The point is that both humans and animals apparently respond to the non-verbal cues given them by persons who expect them to respond certain ways in at least some situations. It was from this foundation that the present study was constructed.

Statement of Purpose. Postulating that the expectancy effect may obtain in other than purely experimental settings, we tested the notion that a director's expectation of either a good or poor acting performance would result in either a good or poor acting job by naive actors. That is, if a director, prior to working with actors, expected them to do well they would give a better performance than if he expected them to do poorly. This expectancy effect, if found in such a situation, could have important implications for those working as directors in the theatre.

Hypothesis. The research hypothesis for this study, then, was that actors whose directors expected them to perform well in a short scene would be judged as having performed better than actors whose directors expected them to do poorly.

Procedure

Subjects (Ss.): The subject actors (N=32) for the experiment were selected from an introductory course in communication theory at the University of Wyoming. Since this course serves to satisfy a humanities requirement at the university, a reasonably good cross-section of students from various majors around the university was assured. All Ss were volunteers. Since acting ability was most difficult to control, we hoped that a rigid randomization of Ss would at least help in holding native acting ability fairly constant. Ss' Sex was split evenly: 47% male and 53% female. Ss chosen for the scenes were randomly selected from the volunteer population.

Directors. Directors (N=8) of the scenes for this experiment were students in an advanced directing class at the university. They also were volunteers.

Experimental Variables. The independent variables used in this study included the dialogue of a short scene (constant for all scenes), sex of the actor (one male and one female in each scene), rehearsal time (25 minutes for each scene), and director expectancy (each director directed one "positive" and one "negative" scene).

Criterion Variable. The dependent variables were the effectiveness of the actors and assessments of overall effectiveness of scenes as judged by members of the theatre faculty and advanced graduate students in Theatre (N=10) at the University of Wyoming. The judges were asked to rate the scenes in two ways: first, after having seen two scenes on video-tape, they were asked to rank order the two scenes as to which was the better; and second, they rated each individual scene on a 6-point scale ranging from "highly acceptable" to "highly unacceptable." They also rated each actor in each scene on the same 6-point scale on four specific criteria: Overall Actor Impression, Memory, Voice, and Body Movement.

Instruments and Procedures. Prior to the experiment, the directors were given a brief scene consisting of ambiguous dialogue. The dialogue con-

sisted of such lines as:"How long have you had it?" "Quite awhile." "Have you adjusted to it?" and so on. The directors were also given a list of things any one of which could serve as the "it" of the dialogue. The list included "vasectomy; Phi Beta Kappa key; new house; new child; job promotion; claustrophobia; dry oil well; divorce; and sexual relationship." The director was free to choose any one of the listed items to portray the "it" of the dialogue. The only restriction here was that the actors were not allowed to name the "it" specifically during the scene. Originally we intended to use the "it" as an index of effectiveness of the scene. That is, we thought if the judges could accurately name the "it" of a given scene, then that scene should have accomplished its goal of conveying the meaning to the judges. However, in almost all cases the "its" were guessed incorrectly and, therefore, the index was meaningless.

The directors were then told they would meet their actors shortly (one male and one female for each scene), and that they were to begin rehearsing the scene. Each director was given 25 minutes in which to work with his actors. In that time they were expected to interpret the scene, get the actors to memorize the lines, block the scene and polish the scene for performance. At the end of that time, the scenes were video-taped. All directors used the same properties and rehearsal rooms.

Prior to working with the actors, each director was told we had run an "acting profile" on all Ss to determine how well they could act. We told them that we had administered a paper and pencil test to all Ss earlier in the year and that the purpose of the present study was to determine the validity of the "acting test" we had developed. If the test were valid, we told them, then those persons who scored well on the test could be expected to act well, and those who scored poorly would be expected to act poorly. Further, to counterbalance the research design, each director was to direct two scenes: one with two actors who had supposedly scored well, thus exhibiting a great deal of "acting potential" and a second with two who had supposedly scored poorly, thus exhibiting very little "acting potential." Directors were led to believe that the test the Ss were supposed to have taken tested them in terms of their

potential ability to memorize, to use their bodies and voices as communicative instruments and to analyze material. Thus each director directed one "positive" scene using actors he expected to act well and one "negative" scene using actors he expected to act poorly. The directors were instructed not to discuss or in any way allude to the bogus "acting profile scores" of their actors.

The question then became whether a director's prior expectations about actors' competency would affect the performance given by the actors as judged by a panel of 10 faculty and graduate students.

There were 16 scenes in all: 8 positive and 8 negative. Each director directed two scenes: one positive and one negative. Since it was not feasible to ask the judges to rank order all 16 scenes from "best" to "worst," we asked them to rank order the two scenes directed by the same director. Presumably, then, the "positive" scene of each director would receive significantly more "better" votes than the director's "negative" scene if the expectancy effect were operative. Each director's pair of scenes was judged in this manner to test the major hypothesis in the study. Additionally, each scene and each actor were rated on the 6-point scale described above (see "Criterion Variable"). Individual pairs of scenes were randomly and blindly presented to the judges, thus they were unaware of the study's purpose. There was no set pattern in the presentation of the pairs of scenes. Sometimes the negative scene of a pair was presented first, and at other times the positive scene was first.

Results

The data obtained from the ranking and rating scales were submitted to the following statistical tests: significance of the difference between percentages, chi-square, t-tests, and multiple regression analyses.

. Percentage of Judges Choosing the "Better" Scene. The first test used revealed which of the paired scenes (one positive and one negative; both by the same director) was chosen most often as the better

scene. Table 1 gives the results of that test.

TABLE 1

PERCENTAGES OF JUDGES CHOOSING "BETTER" SCENES WITHIN PAIRED EXPECTANCIES

Director	Scene	Expectancy	% of Judges choosing scene as "better"	z value	p
1.	A	+	90%	3.64	$<.01$
	B	-	10%		
2.	A	+	80%	2.72	$<.01$
	B	-	20%		
3.	A	+	50%	0	N.S.
	B	-	50%		
4.	A	+	90%	3.64	$<.01$
	B	-	10%		
5.	A	+	80%	2.72	$<.01$
	B	-	20%		
6.	A	+	100%	4.55	$<.01$
	B	-	0		
7.	A	+	60%	.91	N.S.
	B	-	40%		
8.	A	+	80%	2.72	$<.01$
	B	-	20%		

As shown in Table 1, six of the eight paired scenes were correctly predicted by the expectancy hypothesis. That is, in six of the eight scenes, the scene the judges chose as the better was also the one in which the director expected his actors to act well. A chi-square analysis of these data reveal that the "positive" scenes were chosen significantly more often as the better of the paired scenes ($X^2=4.00$, $df=1$, $p<.05$). Worthy of special note is the fact that not one "negative" scene was chosen as the better scene.

t-Tests. Individual criteria rated by the judges were then tested with t-tests to determine if the difference found above in the comparison of percentages could be isolated more specifically. The

TABLE 2
t-TESTS OF INDIVIDUAL CRITERIA

Director	Scene #	Expectancy	Overall Scene Impression (Collapsed over sex) $\bar{X}$	t	p	Overall Impression (male actor only) $\bar{X}$	t	p	Overall Impression (female actor only) $\bar{X}$	t	p	Memory/Voice/ Body-collapsed (collapsed over sex) $\bar{X}$	t	p	Memory/Voice/ Body-collapsed (male actor only) $\bar{X}$	t	p	Memory/Voice/ Body-collapsed (female actor only) $\bar{X}$	t	p
1.	A	+	4.90	1.80	N.S.	4.80	.85	N.S.	4.80	1.28	N.S.	5.08	2.71	<.01	5.03	1.42	N.S.	5.13	3.10	<.006
	B	-	4.10	(<.09)		4.40			4.30			4.32			4.57			4.07		
2.	A	+	4.40	1.00	N.S.	4.70	1.96	N.S.	4.30	.61	N.S.	4.57	.87	N.S.	4.70	1.30	N.S.	4.43	.32	N.S.
	B	-	4.00			3.90	(<.07)		4.00			4.22			4.13			4.30		
3.	A	+	4.40	.73	N.S.	4.20	1.37	N.S.	4.70	1.72	N.S.	4.67	.13	N.S.	4.63	.45	N.S.	4.70	.88	N.S.
	B	-	4.60			4.80			4.10	(<.10)		4.63			4.80			4.47		
4.	A	+	4.60	2.41	<.03	3.50	0	N.S.	4.90	3.43	<.003	4.28	1.89	N.S.	3.60	0	N.S.	4.97	4.30	<.001
	B	-	3.70			3.50			3.70			3.68	(<.08)		3.60			3.77		
5.	A	+	4.20	2.00	N.S.	3.70	3.21	<.005	4.40	.20	N.S.	4.32	2.33	<.03	4.03	4.28	<.001	4.60	.36	N.S.
	B	-	3.30	(<.06)		2.50			4.30			3.48			2.53			4.43		
6.	A	+	2.50	2.70	<.02	2.50	1.67	N.S.	2.80	2.43	<.03	2.77	2.13	<.05	2.77	1.59	N.S.	2.77	2.49	<.02
	B	-	1.40			1.70			1.80			1.88			2.00			1.77		
7.	A	+	4.50	.29	N.S.	4.70	0	N.S.	3.90	.75	N.S.	4.27	1.67	N.S.	4.57	1.32	N.S.	3.97	1.19	N.S.
	B	-	4.60			4.70			4.20			4.67			5.03			4.30		
8.	A	+	4.90	2.42	<.03	4.60	2.87	<.01	5.10	.79	N.S.	5.03	3.81	<.001	4.97	4.44	<.001	5.10	1.28	N.S.
	B	-	4.10			3.30			4.90			3.92			3.03			4.80		

individual criteria included "Overall Scene Effectiveness" (collapsed over sex); "Overall Actor Impression" (male actor only); "Overall Actor Impression" (female actor only); "Memory/Voice/Body" (collapsed over sex); "Memory/Voice/Body-collapsed" (male actor only); and "Memory/Voice/Body-collapsed" (female actor only). Table 2 presents the results of these analyses.

Multiple Regression Tests. Multiple regression tests were run to determine which of the specific judging categories best predicted the eventual rating of "goodness" or "badness" by the judges. While these tests were a bit peripheral to the major hypothesis of the study, it was thought that perhaps some pattern might emerge which would indicate which of the judging categories the judges relied upon the most in making their decisions regarding which was the better scene. Five multiple regression analyses were performed. The first dealt with male actors only, where the criterion variable was the "Overall Scene Effectiveness" rating and the predictor variables were "Overall Actor Impression," "Memory," "Voice," and "Body" ratings. The second dealt with female actors only, where the same criterion variable and predictor variables were employed. The third used the same categories for both sexes combined. The fourth regression analysis dealt with male actors only, where the criterion variable was the "Overall Actor Impression" and the predictor variables were "Memory," "Voice," and "Body." The fifth analysis was the same as for the fourth except for females only. Tables 3 through 7 present these data.

TABLE 3

MULTIPLE REGRESSION ANALYSIS: MALE ACTORS ONLY
(CRITERION VARIABLE = "OVERALL SCENE EFFECTIVENESS")

Predictor Variable	Multiple R	R^2*
Overall Actor Impression	.78	.61
Body Movement	.81	.65
Memory	.81	.66
Voice	.81	.66

*Slight discrepancy in R^2 values results from rounding errors.

The data in Table 3 may be interpreted to mean that the judging category of "Overall Actor Impression" (males only) accounted for 61% of the variance in judging the "Overall Scene Effectiveness." Adding the "Body Movement" category increased the accuracy of prediction of "Overall Scene" by 4% while the addition of both "Memory" and "Voice" added only 1% more.

TABLE 4

MULTIPLE REGRESSION ANALYSIS: FEMALE ACTORS ONLY (CRITERION VARIABLE = "OVERALL SCENE EFFECTIVENESS")

Predictor Variable	Multiple R	R^2
Overall Actor Impression	.75	.56
Memory	.79	.62
Voice	.82	.67
Body Movement	.82	.67

The data in Table 4 mean that "Overall Actor Impression" was the single most important contributor (for females) in predicting the judges' ratings of "Overall Scene Effectiveness." The addition of the "Memory" category increased the precision of prediction by 6%. The category of "Voice" added another 5% while "Body Movement" did not add any significant prediction power.

TABLE 5

MULTIPLE REGRESSION ANALYSIS: COLLAPSED OVER SEX (CRITERION VARIABLE = "OVERALL SCENE EFFECTIVENESS")

Predictor Variable	Multiple R	R^2
Overall Actor Impression	.89	.79
Voice	.90	.80
Memory	.90	.81
Body Movement	.90	.81

By combining the data from Tables 3 and 4 and collapsing over sex, we find that "Overall Actor Impression" ratings given to both actors in a given scene accounted for 79% of the variance in judges' ratings of "Overall Scene Effectiveness." The addition of the other three categories added only 2% more predictive power than the one category of "Actor Impression" alone.

TABLE 6

MULTIPLE REGRESSION ANALYSIS: MALE ACTORS ONLY
(CRITERION VARIABLE = "OVERALL ACTOR IMPRESSION")

Predictor Variable	Multiple R	R^2
Body Movement	.73	.54
Memory	.80	.63
Voice	.80	.65

The data in Table 6 indicate that "Body Movement" was the most important category in determining "Overall Actor Impression" for male actors. "Memory" added another 9% predictive power while "Voice" contributed only 2%.

TABLE 7

MULTIPLE REGRESSION ANALYSIS: FEMALE ACTORS ONLY
(CRITERION VARIABLE = "OVERALL ACTOR IMPRESSION")

Predictor Variable	Multiple R	R^2
Body Movement	.85	.73
Memory	.87	.75
Voice	.87	.75

The data of Table 7 show that "Body Movement" was the most important category in determining "Overall Actor Impression" for female actors. This category was somewhat more important in judging females (73% of the variance) than for male actors (Table 6, 54%). "Memory" and "Voice" added only 2% to the predictive power.

Interpretation and Discussion of Results

The results from the above analyses support the hypothesis. The scenes in which the actors were expected to turn in better performances by their directors were chosen as the "better" scenes significantly more often then those in which the actors were expected to perform poorly. This was supported by the percentage, chi square, and t-test analyses. Of the 48 t-tests made (see Table 2), 16 of the mean differences were statistically significant at the .05 level. (Out of 48 such tests, only 2-3 would be expected to emerge as significant by chance.) The fact that not all of the t-tests reached significance, however, indicates the possibility of the expectancy effect having been cumulative in nature and not necessarily strong enough in each judging category to have shown up in each of the t-tests. Such an explanation is consonant with the data presented in this study. However, it remains that whatever specific criteria caused the judges to choose the "positive" scenes more often than the "negative" ones as the better scene may or may not have been the ones which we tapped. That is, the judges did choose the scenes where the director's expectancy was positive significantly more often than the scenes where the director's expectancy was negative. Something caused that choice. It is possible that the "hidden" criteria used by the judges to make their choices were items which were not tapped by our measuring instrument. That is why we ran the Multiple Regression Analysis: to see how much of the variance we were accounting for in the other tests. If much of the variance was left unaccounted for, one might suspect the existence of other, unknown criteria categories.

The multiple regression analyses were of two types: the first used the "Overall Scene Effectiveness" as the criterion variable and the second used the "Overall Actor Impression" as the criterion variable. The question is how much of the variance in judging was accounted for in the first type of analysis. Of this type of analysis for male actors only, a total of 66% was accounted for using the four predictor variables used in our judging instrument. For female actors only a total of 67% was accounted for. By collapsing these data over sex, yielding an overall scene predictor, we accounted for

81%, thus leaving 19% unaccounted for variance. With just 19% unaccounted for, one may reasonably lean toward the "cumulative" explanation given above. This does not mean that other "hidden" criteria variables did not operate, however, it was entirely possible that the judges based their decisions of which was the better scene of each matched pair on the basis of some unknown variable(s). Nevertheless, the fact remains that with 81% of the vote in, the evidence of this study leads us to conclude that the expectancy effect may be cumulative and may not show up on individual measures of "goodness" or "badness" of acting but will be revealed in a ranking of overall scene effectiveness.

Limitations of Study. There were two major limitations to this study. The first concerns the number of subjects. One would like to have seen a larger number of scenes directed by a larger number of directors and judged by a larger number of judges. The difficulty of doing this is obvious. The advantages of an increased N are equally obvious. With a larger sample, one could be assured of a more truly randomized population. Also, with a larger N, it would be possible to assess the effects of director sex and actor sex on the expectancy phenomenon. (As an aside here, we did attempt to do this but because of our low director N (4 males and 4 females) we were unable to derive stable, testable data.)

The second major limitation is related to the first: control for individual actor talent. While we attempted to counter this problem by distributing our Ss randomly over the scenes, it is difficult to account for innate talent even, or perhaps especially, among those who have never acted before. Ideally, with the present design, one should have as actors persons whose acting talents are roughly equal. This limitation is related to the first in that the larger the sample, the more likely it is that talented and untalented persons will equalize each other in the positive and negative scenes. The smaller the sample, however, the more likely it is that a nonsystematic bias may be built into the data. One possible method for controlling talent would be to use only persons judged relatively equal in acting ability as determined by a screening process. This would allow the researcher to test

whether the expectancy effect obtains with highly talented as well as with highly untalented persons.

Suggestions For Future Research

The first suggestion is to replicate the present study with a completely different sample to determine if our results were somehow scewed as a result of the population drawn upon. This should also include an increased N as discussed above. A second suggestion, also discussed above, would be to segment the directors by sex to test whether director sex mediates the expectancy effect in an acting setting. One might also account for the interaction of judge sex by actor sex by director sex. This would have implications for extension to an audience situation in which the individual auditor is the "judge." Another suggestion would be to test for the effect of one actor's expectations of another's ability. It seems reasonable to suspect expectancy to be operating in this circumstance as well. Also, the time allowed in rehearsal should be varied. It may be that only in short scenes such as were used here will expectancy effect show up. On the other hand, with more complex tasks (such as complex dialogue and blocking) and a longer rehearsal time (such as in a major production) the expectancy effect may be even stronger than was demonstrated in this study. One final suggestion is to test for the effects of director experience. It is possible that the greater the experience the more or less pronounced the expectancy effect.

Summary And Conclusions

Summary. This study was designed to test the effect of a director's expectation of good or bad performance by his actors on the judged effectiveness of their performances. Each director directed two scenes: one in which he was led to believe his actors would perform well and one in which he was led to believe his actors would perform poorly. With dialogue, rehearsal time, and properties held constant, each scene was video-taped and judged by a panel of theatre faculty and graduate students. The results indicated that the judged effectiveness of the performances were affected by the director's expectancies. Scenes in which actors were expected

to perform well were rated significantly more often as "better" than similar scenes in which the actors were expected to perform poorly. It was suggested that the expectancy effect was cumulative in nature and was demonstrable mainly in the judgment of "Overall Scene Effectiveness."

Implications. If this so-called "expectancy effect" can be shown to operate generally in professional director-actor interaction, the implications are far-reaching. Indeed there are few among us who do not enter a situation with some knowledge of the other person in the interaction and that knowledge may lead to some expectations about other's behavior. It would be strange if this did not happen generally among directors and actors. It may be possible, therefore, that a director's expectations of an actor's potential ability may itself affect that actor's ability. We may be inadvertantly retarding some actors while accelerating others. In either case, we ought to explore this area of research because we deserve to know, indeed need to know, what effect our expectations have on another's acting behavior. Regardless, it is apparent that this is a rich area well deserving of future exploration.

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